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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/784,093	02/16/2001	In-Duk Song	8733.398.00	3221

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EXAMINER

CHOWDHURY, TARIFUR RASHID

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 11/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/784,093	Applicant(s) SONG ET AL.	
	Examiner Tarifur R Chowdhury	Art Unit 2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 7-9, 16 and 17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 10-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 09/29/03 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

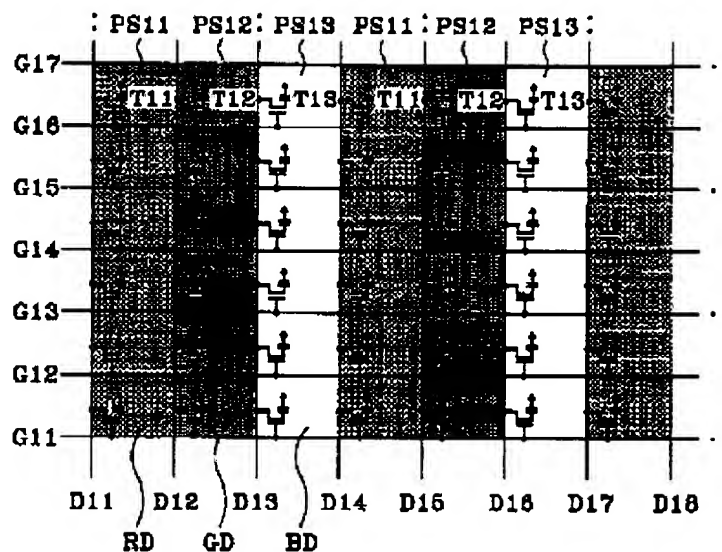
4. Claims 1-3, 6 and 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admitted prior art (AAPA) in view of Shin et al., (Shin), USPAT 6,259,504.

5. The AAPA described in the present application discloses in pages 1-6 and shown in Figs. 3 and 4, discloses, a liquid crystal display device comprising:

- a liquid crystal panel (111) having a plurality of gate lines (117) and data lines (119) and a plurality of sub-pixels, wherein the gate lines (117) are arranged in a transverse direction and the data lines (119) are arranged in a longitudinal direction, wherein each sub-pixel is defined by the gate and data lines and corresponds to a color filter that has one of red, green, blue and white colors;
- a gate driver integrated circuit (113b) connected to the plural gate lines (117) for driving the gate lines, the gate driver IC arranged on a first side portion of the liquid crystal panel (111); and
- a data driver integrated circuit (115a) connected to the plural data lines (119) for driving the data lines, the data driver IC arranged on a second side of the liquid crystal panel (111).

The AAPA described in the present application differs from the claimed invention because it does not explicitly disclose that the color filters are stripe-shaped such that color filters along the same data line have the same color and adjacent ones of color filters along the same gate line have different colors. The AAPA also does not explicitly disclose that a black matrix is arranged between each color filter.

Shin discloses that typically color filters are arranged in one of several patterns such as mosaic-pattern, stripe-pattern and triangle-pattern (col. 1, lines 13-15). Shin also discloses (col. 1, lines 15-43) and shows in Fig. 1 a the stripe type pixel arrangement that includes a plurality of gate lines (G11, G12, G13.....) and a plurality of data lines (D11, D12, D13.....) and that the color filters along the same data line have the same color and adjacent ones of color filters along the same gate line have different colors.



Shin is evidence that ordinary workers in the art would find a reason, suggestion or motivation to use stripe type pixel arrangement in a liquid crystal display.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the display device of the AAPA by having stripe-shaped pixel arrangement such as color filters along the same data line have the

same color and adjacent ones of color filters along the same gate line have different colors to avail a common and known pixel arrangement.

Further, forming black matrix between each color filter is common and known in the art for several reasons such as to improve contrast and thus would have been obvious.

The AAPA described in the present application also discloses that the color filter has a white color and as to the white color being made of a transparent resin is common and known in the art and thus would have been obvious to avail a proven material.

Accordingly, claims 1-3 would have been obvious.

As to claim 10, the AAPA described in the present application also shows that each data driver IC (115a, 115b) arranged on a same one of a top side portion and a bottom side portion of the liquid crystal panel (111).

As to claims 6 and 12, using the data driver IC to drive adjacent odd and even numbered data lines is considered as intended use and thus would have been obvious.

As to claim 11, the AAPA described in the present application discloses that the liquid crystal display device comprises at least one tape carrier package connecting the at least one data driver IC to the liquid crystal cell.

As to claim 13, the AAPA described in the present application shows in Fig. 3 that only one sub-pixel corresponding to a color filter that has red, green, blue and white colors and each data line is connected to a sub-pixel corresponding to one of the color filters. Further, it is known that a single liquid crystal display panel comprises a plurality of sub-pixels. Therefore, it would have been obvious to one of ordinary skill in the art

that each data line is connected to a plurality of sub-pixels each corresponding to one of the color filters having a same color.

6. Claims 4, 5, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Shin as applied to claims 1-3, 6 and 10–13 above and further in view of Shiba et al., (Shiba), USPAT 5,526,014.

7. The AAPA described in the present application differs from the claimed invention because it does not explicitly disclose the limitation such as using the gate driver IC to alternate polarity of a gate line driving signal either for each of the gate lines at each frame interval or for adjacent gate lines during a same frame interval.

Shiba discloses that if driving voltages of the same polarity are applied continuously to a liquid cell, electrochemical changes are generated in the pixel electrode and the counter electrode, deteriorating the sensitivity of display and luminance. In order to prevent this it is necessary to constantly invert the polarity of the voltage applied to the liquid crystal cell (col. 2, lines 29-40).

Shiba is evidence that ordinary workers in the art of liquid crystal would find a reason, suggestion or motivation to use gate driver IC to alternate polarity of a gate line driving signal either for each of the gate lines at each frame interval or for adjacent gate lines during a same frame interval.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to use the gate driver IC of the AAPA to alternate polarity of a gate line driving signal either for each of the gate lines at each frame

interval or for adjacent gate lines during a same frame interval so that the deterioration of sensitivity of the display and luminance is prevented.

Response to Arguments

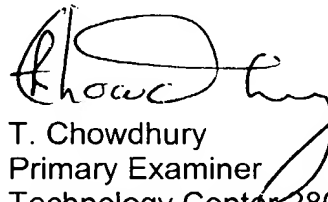
8. Applicant's arguments with respect to claims 1-6 and 10-15 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tarifur R Chowdhury whose telephone number is (703) 308-4115. The examiner can normally be reached on M-Th (6:30-5:00) Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (703) 305-3492. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.



T. Chowdhury
Primary Examiner
Technology Center 2800

TRC
October 28, 203